REMARKS

Specification

On page 3 of the Office Action, the Examiner states that the specification is objected for failing to adhere to the requirements of the sequence rules. The Examiner also states the specification is objected because it contains an embedded hyperlink and/or other forms of browser executable code.

The specification is amended as described supra. Replacement sheets comprising amended figures are attached to the Response. Applicants submit that based on the amendment to the paragraphs, the specification is now compliant with the Sequence Rules. The specification no longer contains embedded hyperlink and/or other forms of browser executable code. Accordingly, based on the amendments to the specification, Applicants request the withdrawal of the objections to specification.

Status of the Claims

Claims 1-50 are pending and stand rejected. Claims 1, 2, 6-17, 27-40, 43-46 and 50 are currently amended. Claim 3-5 and 26 are canceled herein. No new matter is added to the amended claims.

Claim amendments

Claims 1 and 2 are amended to overcome the claim objection, 35 U.S.C §101, §102, §103 and §112 rejections. Amended claim 1 recites a non-catalytic, non-chimeric monoclonal antibody or a purified attenuated mutant thereof from an organism with autoimmune disease which recognizes a HIV antigen and neutralizes HIV-1. The amendment to claim 1 is supported by the specification, specifically Example 2 as described on page 22, line 28-page 31, line 31.

Amended claim 2 recites a non-catalytic, non-chimeric monoclonal antibody or a purified attenuated mutant thereof from an organism with autoimmune disease which recognizes an antigen encoded by a HERV DNA sequence homologous to a HIV antigen and neutralizes HIV-1. The amendment to claim 2 is supported by the specification, specifically Example 4 as described on page 41, line 22-page 44, line 20.

Claims 6-17, 27-40 and 43-46 are amended to recite 'purified attenuated mutant' instead of the term 'fragment' as suggested by the Examiner on page 5 of the Office Action, in order to overcome the U.S.C §101 rejection.

Claims 6, 17, 27, 36, 40 and 45 are amended to no longer depend from canceled claims 3-5, and 26.

Claims 36, 40 and 50 are amended to overcome the 35 U.S.C. §112, second paragraph rejection. Amended claims now reference HERV sequences to SEQ ID NO: 41. Amended claims no longer reference HERV sequences to Genbank accession numbers. Applicants submit that the claim amendments are supported by the sequence listing in the instant specification.

Claim Objections

Claims 1 and 2 are objected for reciting that "a monoclonal antibody ..... neutralizes microbial infection". Applicants respectfully traverse this objection.

On page 3 of the Office Action, the Examiner states that claims 1 and 2 are objected to for reciting "a monoclonal antibody..... neutralizes microbial infection". The Examiner argues that it is known in the art that an antibody neutralizes a pathogen but not a 'microbial infection'. Based on this, the Examiner concludes that appropriate correction is required.

Claims 1 and 2 have been amended as described supra. Amended claims 1 and 2 no longer recite 'a monoclonal antibody..... neutralizes microbial infection'. Accordingly, based on the amendments and remarks, Applicants respectfully request the withdrawal of the objection to claims 1 and 2.

The 35 U.S.C. §112, Second Paragraph Rejection

Claims 36, 40 and 50 are rejected under 35 U.S.C. §112, second paragraph as being indefinite. Applicants respectfully traverse this rejection.

On page 4 of the Office Action, the Examiner states that claims 36, 40 and 50 are indefinite because they reference HERV sequences to the Genbank Accession No rather than to sequences set forth in the specification. The Examiner argues that this is an improper incorporation by reference, since the information required to describe and enable the required sequences is found in the Genbank database, extraneous to the application. The Examiner further argues that since Genbank sequences are not irrevocably fixed but are corrected and updated as additional sequence information becomes available, the GenBank accession number may refer to sequences which change after the application date. The Examiner suggests that deleting references to the GenBank accession numbers and instead referring HERV sequences to specific SEQ ID NOs, would overcome this rejection.

Claims 36, 40 and 50 are amended as described supra. Applicants submit that amended claims 36, 40 and 50 no longer reference HERV sequences to the Genbank Accession No. The amended claims reference HERV sequences to specific SEQ ID NOs.

Accordingly, based on the amendments and remarks, Applicants respectfully request the withdrawal of the rejection of claims 36, 40 and 50 under 35 U.S.C. §112, second paragraph.

The 35 U.S.C. §101 Rejection

Claims 1-7, 15, 26-28 and 47-50 are rejected under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter. Applicants respectfully traverse this rejection.

On page 5 of the Office Action, the Examiner states that claims 1-7, 15, 26-28 and 47-50 recite the product 'antibody fragment' which is a product of nature present in an individual with autoimmune disease. The Examiner argues that products of nature do not constitute subject matter patentable under 35 U.S.C. §101.

Claims 1-7, 15, 26-28 and 47-50 are amended as described supra to recite 'purified attenuated mutant'. Accordingly, Applicants respectfully request the withdrawal of the rejection of claims 1-7, 15, 26-28 and 47-50 under 35 U.S.C. §101.

The 35 U.S.C. §112, First Paragraph Rejections

Claims 1-50 are rejected under 35 U.S.C. §112, first paragraph as containing subject matter which is not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s) at the time the application was filed, had possession of the claimed invention. Applicants respectfully traverse this rejection.

On page 6 of the Office Action, the Examiner states that claims 1-50 are directed to a monoclonal antibody or fragment from any organism with any autoimmune disease which recognizes a microbial antigen and neutralizes any microbial infection. The Examiner argues that the scope of the claims includes a subgenus of a monoclonal antibody or fragment from a genus of monoclonal antibodies or fragments thereof that both recognize a microbial antigen and neutralize microbial pathogens. The Examiner states that the specification provides support for antibody fragments that recognize residue 421-436 of HIV gp120, and also recognize HERV antigens isolated from lymphoid cells of lupus patients. The Examiner argues that the specification does not support any antibody or fragment thereof that recognizes and neutralizes any microbial pathogens other than HIV. On page 8 of the Office Action, the Examiner argues that the state of the art teaches

that it is unpredictable which antibody can both recognize and neutralize a pathogen. The Examiner further argues that the specification has failed to describe a sufficient number of representative species of antibodies for the subgenus of antibodies that both recognize and neutralize a microbial pathogen.

Claims 1 and 2 are amended as described supra. Based on these amendments, Applicants submit that Claims 1, 2 and dependent claims only teach non-catalytic, non-chimeric antibodies or fragments that recognize a HIV antigen and neutralize HIV-1. As explained by the Examiner, the specification teaches antibody fragments that recognize residue 421-436 of HIV gp120, and also recognize HERV antigens isolated from lymphoid cells of lupus patients. Example 2 of the instant specification teaches antibodies that recognize HIV antigen gp120. Additionally page 29, line 12-page 30, line 29 teaches HIV neutralization by Ab fragments, specifically FvJL413 and FvJL427 that recognize HIV gp120. Figure 11 as described on page 5, lines 21-24 teaches concentration dependent HIV-1 neutralization by purified antibody fragments. Example 4, on page 41, line 25-page 44, line 20 teaches the identification of antibody or fragment thereof that recognizes an antigen encoded by a HERV DNA sequence homologous to HIV antigen gp120 and neutralizes HIV-1.

Applicants submit that as explained supra, amended claims 1, 2 and dependent claims only contain subject matter fully described in the specification. Amended claims do not recite antibodies that both recognize and neutralize any microbial pathogen, other than HIV-1.

Accordingly, based on this amendment and remarks, Applicants respectfully request the withdrawal of the rejection of claims 1, 2 and dependent claims 6-25 and 27-50 under 35 U.S.C. §112, first paragraph.

The 35 U.S.C. §102 Rejections

Claims 1-8, 15-23, 26-29, 38, 39 and 47-49 are rejected under 35 U.S.C. §102(b) as being anticipated by **Paul et al** (U.S. Patent No. 6,156,541), as evidenced by **Gorny et al** (J. Virology, 76(18): 9035-9045). Applicants respectfully traverse this rejection.

On page 8 of the Office Action, the Examiner states that claim 1-8, 15-23, 26-29, 38, 39 and 47-49 are drawn to a monoclonal antibody or fragment thereof from an organism with an autoimmune disease, which recognizes a microbial antigen and neutralizes a microbial infection, wherein the autoimmune disease is systemic lupus erythematosus, wherein the antibody or fragment neutralizes HIV-1, wherein the antibody or fragment recognize/bind to an antigen of HIV gp120, or gp120 fragment, wherein the antibody fragment is a Fab fragment, a Fv fragment, a light chain. The Examiner further states that claims 18, 19, 22 and 23 require that said antibody or

fragment thereof neutralize at least two or three HIV strains belonging to different HIV clades. On page 10 of the Office Action, the Examiner argues that **Paul** teaches monoclonal light chain isolated from patients with lupus that can neutralize HIV-1 gp120, wherein the antibody fragment can be Fab fragments, Fv fragments, light chains and light chain dimers. The Examiner further argues that the monoclonal light chain against HIV-1 gp120 of the prior art inherently has the ability to neutralize more than two strains of different HIV clades. The Examiner states that **Gorny** teaches monoclonal antibodies to HIV gp120 that show cross-clade binding to native, intact HIV virions of Clades A, B, C, D and F. In view of these teachings, the Examiner concludes that the instant claims are anticipated by **Paul**.

Claims 1 and 2 are amended as described supra. Amended claims are drawn to non-catalytic, non-chimeric monoclonal antibodies and purified attenuated mutants thereof. Applicants submit that **Paul** teaches catalytic antibodies which catalyze the hydrolysis of the HIV gp120 protein. The invention described by **Paul** teaches hydrolytic anti-gp120 antibodies and catalytic L chain antibody components isolated from patient sera that efficiently cleave gp120 into inactive subfragments by mediating hydrolysis of gp120 as described in Example I of the specification. **Paul** does not teach that a non-catalytic antibody can neutralize HIV-1. Breakdown of gp120 is sufficient to neutralize HIV. Unlike a catalytic antibody, a non-catalytic antibody can only neutralize HIV if it binds HIV sufficiently tightly at the correct epitope so that the interaction of HIV with host cells is sterically hindered. Based strictly on the teaching of **Paul,** one of skill in the art can only isolate catalytic antibodies that neutralize HIV by catalyzing the hydrolysis of gp120 protein. Based on this, Applicants submit that **Paul** teaches away from the instant invention.

Applicants submit that all the antibodies and fragments encompassed by the instant invention as described in claims 1, 2 and dependent claims, are non-catalytic antibodies isolated from an organism with autoimmune disease. Applicants submit that as described supra, **Paul** does not teach any non-catalytic antibodies isolated from an organism with autoimmune disease. This deficiency of **Paul** is not overcome by **Gorny** which teaches human MAbs that bind to V3 domain of HIV gp120 demonstrating cross-clade binding to native HIV virions of clades A, B, C, D and F. Neither **Paul** nor **Gorny** teach non-catalytic antibodies isolated from an organism with autoimmune disease, wherein the antibody and fragments thereof recognizes a HIV antigen and neutralizes HIV-1. Neither **Paul** nor **Gorny** teach non-chimeric, non-catalytic antibodies isolated from an organism with autoimmune disease, wherein the antibody and fragments thereof recognizes an antigen encoded by a HERV DNA sequence homologous to a HIV-1_antigen and neutralizes HIV-1. Applicants further submit that the instant invention as taught in claims 21-23 encompassed light chain units which neutralizes strains belonging to HIV-1 clades C and D. In contradiction, **Gorny**

teaches that the neutralization of clades C and D was weak and sporadic (abstract). Applicants submit that **Gorny** teaches away from the instant invention.

In order to anticipate the instant invention, **Paul** and **Grony** must anticipate all elements of the instant invention. Based on this, Applicants submit that the combination of **Paul** and **Gorny** does not identify the claimed invention. Accordingly, based on the claim amendments and these remarks, Applicants respectfully request the withdrawal of the rejection of claims 1-2, 6-8, 15-23, 27-29, 38, 39 and 47-49 under 35 U.S.C. §102(b).

The 35 U.S.C. §102/103 Rejection

Claims 1-8, 15-23, 26-29, 36-42 and 47-50 stand rejected under 35 U.S.C. §102(b) as being anticipated by, or in the alternative, under 35 U.S.C. §103 as obvious over **Chang et al** (U.S. Patent No. 6,309,880), as evidenced by **Gorny et al** (J. Virology, 76(18): 9035-9045), further evidenced by **Bost** (Immunological Investigations, 17, 577-586, 1988), **Golding** (J Exp Med 1988, 167, 914) and **Langat DK** (J Reprod Immunol 1999, 42, 41-58). Applicants respectfully traverse this rejection.

The Examiner states that claim 1-8, 15-23, 26-29, 38, 39 and 47-49 are drawn to a monoclonal antibody or fragment thereof from an organism with an autoimmune disease, which recognizes a microbial antigen and neutralizes a microbial infection, wherein the autoimmune disease is systemic lupus erythematosus, wherein the antibody or fragment neutralizes HIV-1, wherein the antibody or fragment recognize/bind to an antigen of HIV gp120, or gp120 fragment, wherein the antibody fragment is a Fab fragment, a Fv fragment, a light chain. The Examiner further states that claims 18, 19, 22 and 23 require that theh antibody or fragment thereof neutralize at least two or three HIV strains belonging to different HIV clades. The Examiner further states that claims 36, 40-42 and 50 are directed to antibody fragment obtained by expressing a library of Fv constructs on the surface of phage particles and isolating a sub-population of HIV-reactive Fv particles that recognize an antigen selected from the group consisting of intact HIV, trimeric gp120, monomeric full-length gp120 and fragments of gp120. The Examiner argues that **Chang** teaches neutralizing antibodies that bind residues 423-437 of HIV gp120. The Examiner also argues that **Chang** teaches the construction of chimeric antibodies by chimeric DNA constructs. The Examiner states that the relevance of Gorny is set forth supra. The Examiner argues that **Chang's** SEQ ID NO: 1 shares 100% homology with the HIV antigen epitope used to select the claimed antibody fragment and 5 residues with HERV antigen fragment recited in claims 36, 40 and 50. The Examiner argues that **Bost** teaches antibodies that bind to IL2 and HIV epitope due to presence of 4 to 6 identical residues. The Examiner states that **Golding** teaches that monoclonal antibodies

against HIV gp41 cross react with native HLA class II antigens due to the epitopes sharing five amino acids in common. The Examiner also states that **Langat** teaches that antibodies to HIV gp120 cross-react with endogenous retroviral particles in primate placental tissue. The Examiner additionally argues that **Chang**'s antibody must inherently recognize and bind with the HERV antigen fragment of the instant claim. The Examiner concludes that the antibody disclosed in the prior art appears to be the same or an obvious variant of the antibody of the instant invention, since they appear to have the same specificity.

Applicants submit that **Chang** is drawn to chimeric antibodies that target the CD4-binding region of gp120 HIV-1, and which neutralize HIV-1. Specifically, **Chang** teaches chimeric Ab that binds to residues 423-437 of HIV gp120 and neutralizes a single strain of HIV-1 as taught by Example 1 of **Chang**. Applicants submit that **Chang** does not teach any non-chimeric monoclonal antibodies or fragments thereof. Importantly, Chang's antibodies were obtained by immunization of mice with gp120, not from an autoimmune organism. The present invention teaches antibodies that are produced spontaneously by autoimmune organisms without immunization with gp120. The immunogen driving production of the antibodies in the present invention is a HERV. It is well known in art that antibodies produced by B cells in response to different antigens express differing functional properties even if they are found by epitope mapping studies to bind the same or similar peptide determinant. This is because the antibodies have different antigen combining structures. Indeed, the sequences of Chang's antibodies are not the same as the sequences of the antibodies in the present invention. It is well known in the art that small peptides used for epitope mapping can refold into a shape complementary to that of the antigen combining site. Thus, binding to small synthetic peptides does not predict recognition of the native peptide region expressed on the surface of HIV. It is for this reason that Chang's antibodies do not express the potent and broad neutralization of genetically diverse HIV-1 strains seen with the antibodies of the present invention. It is also for this reason that vaccine trials using the same immunogen as Chang, that is, gp120, have not shown the production of antibodies capable of neutralizing genetically diverse HIV strains. Based on this, Applicants submit that **Chang** teaches away from the instant claimed invention.

Applicants submit that all the antibodies and fragments encompassed by the instant invention as described in claims 1, 2 and dependent claims, are non-chimeric, non-catalytic antibodies isolated from an organism with autoimmune disease. Applicants submit that as described supra, **Chang** does not teach any non-chimeric, non-catalytic antibodies isolated from an organism with autoimmune disease. This deficiency of **Chang** is not overcome by **Gorny** which teaches human MAbs that bind to V3 domain of HIV gp120 demonstrating cross-clade binding to native HIV virions of clades A, B, C, D and F. Applicants further submit that the instant invention as

taught in claims 21-23 encompassed light chain units which neutralizes strains belonging to HIV-1 clades C and D. In contradiction, **Gorny** teaches that the neutralization of clades C and D was weak and sporadic (abstract). Applicants submit that **Gorny** teaches away from the instant invention.

Neither **Chang** nor **Gorny** teach non-chimeric, non-catalytic antibodies isolated from an organism with autoimmune disease, wherein the antibody and fragments thereof recognizes a HIV antigen and neutralizes HIV-1. **Bost** teaches antibodies that bind to IL2 and HIV epitope due to presence of 4 to 6 identical residues; **Golding** teaches that monoclonal antibodies against HIV gp41 cross react with native HLA class II antigens due to the epitopes sharing five amino acids in common; and **Langat** teaches that antibodies to HIV gp120 cross-react with endogenous retroviral particles in primate placental tissue. Applicants submit that the combination of **Bost**, **Golding** and **Langat** do not overcome the deficiency of **Chang** and **Gorny.**

In order to anticipate the instant invention, **Chang** and **Grony** in combination with **Bost**, **Golding** and **Langat** have to anticipate all elements of the instant invention. Based on this, Applicants submit that the combination of **Chang**, **Grony**, **Bost**, **Golding** and **Langat** does not identify the claimed invention. Accordingly, based on these remarks, Applicants respectfully request the withdrawal of the rejection of claims 1-2, 6-8, 15-23, 27-29, 38, 39 and 47-49 under 35 U.S.C. §102(b).

Applicants additionally submit that **Chang**, **Grony**, **Bost**, **Golding** and **Langat** do not render obvious amended independent claims 1, 2 and dependent claims 6-8, 15-23, 27-29, 36-42 and 47-50 as a person with ordinary skill in this art would not have a reasonable expectation that the claimed invention would work successfully. Accordingly, based on these remarks, Applicants respectfully request the withdrawal of the rejection of claims 1-2, 6-8, 15-23, 27-29, 36-42 and 47-50 under 35 U.S.C. §103.

The 35 U.S.C. §103 Rejections

Claims 36, 37, 40, 41 and 50 are rejected under 35 U.S.C. §103(a) as unpatentable over **Paul** as evidenced by **Gorny** as applied to claims 1-8, 15-23, 26-29, 38, 39 and 47-49 above, further in view of **Chang** (U.S. Patent No. 6,309,880), **Paul** (Appl Biochem Biotechnol, 2000, 83 (1-3), **Bost** (Immunological Investigations, 17, 577-586, 1988), **Golding** (J Exp Med 1988, 167, 914) and **Langat DK** (J Reprod Immunol 1999, 42, 41-58). Applicants respectfully traverse this rejection.

The Examiner states that **Paul** does not explicitly teach antibody fragments that can bind HERV antigen. The Examiner argues that **Paul** (2) teaches that monoclonal light chain from multiple myeloma patients have the ability to cleave HIV gp120 isolated from strains SF2,

MN and IIIB. Based on this, the Examiner argues that **Paul** (2) teaches that substrate recognition determinants are conserved in various HIV-1 strains. The Examiner further argues that the relevance of **Gorny, Chang** (U.S. Patent No. 6,309,880), **Bost** (Immunological Investigations, 17, 577-586, 1988), **Golding** (J Exp Med 1988, 167, 914) and **Langat** has been explained supra. Based on this, the Examiner argues that it would have been obvious to the ordinary artisan to isolate an antibody from SLE patients that can recognize an HIV antigen, especially in the absence of evidence to the contrary.

Applicants submit that both **Paul** and **Gorny** teach away from the invention of instant claim 2, thus teaching away from claims dependent on claim 2. Neither **Paul** nor **Gorny** teach non-chimeric, non-catalytic antibodies isolated from an organism with autoimmune disease, wherein the antibody and fragments thereof recognizes an antigen encoded by a HERV DNA sequence homologous to a HIV_antigen and neutralizes HIV-1. As explained supra, **Chang** teaches away from the instant invention. Additionally, the combination of **Chang**, **Grony**, **Bost**, **Golding** and **Langat** do not teach or render obvious non-chimeric, non-catalytic antibodies isolated from an organism with autoimmune disease, wherein the antibody and fragments thereof recognizes an antigen encoded by a HERV DNA sequence homologous to a HIV_antigen and neutralizes HIV-1.

Applicants further submit that the combination of **Paul**, **Gorny**, **Chang**, **Bost**, **Golding** and **Langat** do not teach or render obvious non-chimeric, non-catalytic antibodies isolated from an organism with autoimmune disease, wherein the antibody and fragments thereof recognizes an antigen encoded by a HERV DNA sequence homologous to a HIV antigen and neutralizes HIV-1. This deficiency is not remedied by **Paul (2)** which teaches that substrate recognition determinants are conserved in various HIV-1 strains. Applicants further submit that one for skill in the art would not be motivated to combine the seven references of **Paul**, **Gorny**, **Chang**, **Bost**, **Golding**, **Langat** and **Paul (2),** in the manner stated by the Examiner, absent specific directions in the art. Applicants submit that no such motivation exists in the cited art.

Paul, Chang, **Grony**, **Bost**, **Golding**, **Langat** and **Paul (2)** do not render obvious dependent claims 36, 37, 40, 41 and 50 as a person with ordinary skill in this art would not have a reasonable expectation that the claimed invention would work successfully. Accordingly, based on these remarks, Applicants respectfully request the withdrawal of the rejection of claims 36, 37, 40, 41 and 50 under 35 U.S.C. §103.

Claims 9-14, 24, 25, 30-35 and 42-46 are rejected under 35 U.S.C. §103(a) as unpatentable over **Paul** as evidenced by **Chang** (U.S. Patent No. 6,309,880), **Paul** (Appl

Biochem Biotechnol, 2000, 83 (1-3), **Bost** (Immunological Investigations, 17, 577-586, 1988), **Golding** (J Exp Med 1988, 167, 914) and **Langat DK** as applied to claims 1-8, 15-23, 26-29, 36-41 and 47-50 above, further in view of **Kriangkum** (Biomolecular Engineering 18:31-40, 2000). Applicants respectfully traverse this rejection.

The Examiner states that **Paul** does not teach the embodiment of single chain Fv constructs as recited in Claims 11-14, 24, 25, 30-35 and 41-46. The Examiner argues that **Kriangkum** teaches that constructing a single chain Fv is widely used in the art to enhance antibody function. Based on this the Examiner concludes that the instant invention would have been obvious to the artisan of skill in the art based on **Paul**, **Chang**, **Paul** (2), **Bost**, **Golding**, **Langat** and **Kriangkum**.

Claims 9-14, 24, 25, 30-35 and 42-46 are dependent on claims 1 and 2, amended as described supra. As explained supra, **Paul** teaches away from the invention of instant claims 1 and 2, thus teaching away from claims dependent on claims 1 and 2. **Paul** and **Groni** do not teach non-catalytic antibodies isolated from an organism with autoimmune disease, wherein the antibody and fragments thereof recognize a HIV antigen and neutralizes HIV-1. **Paul** and **Grony** also does not teach non-chimeric, non-catalytic antibodies isolated from an organism with autoimmune disease, wherein the antibody and fragments thereof recognizes an antigen encoded by a HERV DNA sequence homologous to a HIV antigen and neutralizes HIV-1. As explained supra, **Chang** teaches away from the instant invention. Additionally, the combination of **Chang**, **Grony**, **Bost**, **Golding** and **Langat** do not teach or render obvious non-chimeric, non-catalytic antibodies isolated from an organism with autoimmune disease, wherein the antibody and fragments thereof recognizes a HIV antigen and neutralizes HIV-1; or recognizes an antigen encoded by a HERV DNA sequence homologous to a HIV antigen and neutralizes HIV-1.

Applicants further submit that the combination of **Paul**, **Grony**, **Chang**, **Bost**, **Golding** and **Langat** do not teach or render obvious non-chimeric, non-catalytic antibodies isolated from an organism with autoimmune disease, wherein the antibody and fragments thereof recognizes a HIV antigen and neutralizes HIV-1; or recognizes an antigen encoded by a HERV DNA sequence homologous to a HIV antigen and neutralizes HIV-1. This deficiency is not remedied by **Paul (2)** which teaches that substrate recognition determinants are conserved in various HIV-1 strains. This deficiency is also not remedied by **Kriangkum** that teaches constructing a single chain Fv. Applicants further submit that one for skill in the art would not be motivated to combine the eight references of **Paul**, **Grony**, **Chang**, **Bost**, **Golding**, **Langat**, **Kriangkum** and **Paul (2)** in the method stated by the Examiner, absent specific directions in the art. Applicants submit that no such motivation exists in the cited art.

Paul, Chang, Grony, Bost, Golding, Langat, Kringaum and **Paul (2)** do not render obvious dependent claims 9-14, 24, 25, 30-35 and 42-46 as a person with ordinary skill in this art would not have a reasonable expectation that the claimed invention would work successfully. Accordingly, based on these remarks, Applicants respectfully request the withdrawal of the rejection of claims 9-14, 24, 25, 30-35 and 42-46 under 35 U.S.C. §103.

Non-statutory double patenting rejection

Claims 1-10, 15-17, 21, 26-28, 38, 39 and 47-49 are provisionally rejected on the ground of non-statutory obviousness-type double patenting as being unpatentable over claims 1-8 of U.S. Patent No. 6,156,541. Applicants respectfully traverse this rejection.

On page 18 of the Office Action, the Examiner states that claims 1-8 of U.S. PAT 6,156,541 are directed to an isolated natural catalytic antibody obtained from a patient with SLE, wherein the antibody consists of Fab fragments, Fv fragments, light chain and light chain dimers. Based on this, the Examiner concludes that the subject matter of claims 1-10, 15-17, 21, 26-28, 38, 39 and 47-49 is anticipated by claims 1-8 of U.S. Patent No. 6,156,541.

Claims 1 and 2 are amended as described supra to recite non-catalytic, non-chimeric monoclonal antibodies and purified attenuated mutants thereof. Applicants submit that U.S. Patent No. 6,156,541 teaches catalytic antibodies which catalyze the hydrolysis of the HIV gp120 protein. The invention described in claims 1-8 of U.S. Patent No. 6,156,541 teaches catalytic anti-gp120 antibodies and catalytic L chain antibody components isolated from patient sera that catalyzes the cleavage of a peptide bond in gp120. Based strictly on claims 1-8 of U.S. Patent No. 6,156,541, one of skill in the art can only isolate catalytic antibodies that neutralize HIV by catalyzing the hydrolysis of gp120 protein. Based on this, Applicants submit that claims 1-8 of U.S. Patent No. 6,156,541 teach away from the instant invention.

Applicants submit that all the antibodies and fragments encompassed by the instant invention as described in claims 1, 2 and dependent claims, are non-catalytic antibodies isolated from an organism with autoimmune disease. Applicants submit that as described supra, claims 1-8 of U.S. Patent No. 6,156,541 do not teach any non-catalytic antibodies isolated from an organism with autoimmune disease. Claims 1-8 of U.S. Patent No. 6,156,541 do not render obvious the isolation of non-catalytic antibodies isolated from an organism with autoimmune disease.

Applicants submit that claims 1-8 of U.S. Patent No. 6,156,541 do not render obvious amended independent claims 1, 2 and dependent claims 6-10, 15-17, 21, 26-28, 38, 39 and 47-49 as a person with ordinary skill in this art would not have a reasonable expectation that

the claimed invention would work successfully. Accordingly, based on these remarks, Applicants respectfully request the withdrawal of the provisional rejection of claims 1, 2 and dependent claims 6-10, 15-17, 21, 26-28, 38, 39 and 47-49 under the judicially created doctrine of obviousness-type double patenting.

This is intended to be a complete response to the Office Action mailed May 21, 2009. If any issues remain outstanding, please telephone the undersigned attorney of record for immediate resolution. Only in the absence of Form PTO-2038, please debit all applicable fees from Deposit Account No. 07-1185, upon which the undersigned is allowed to draw.

Respectfully submitted,

Date: Nov 23, 2009

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